NASA POLICY DIRECTIVE

Directive: NPD 8710.3
Effective Date: May 29, 1997
Expiration Date: May 29, 2002

Responsible Office: Q / Office of Safety and Mission Assurance

Subject: NASA Policy For Limiting Orbital Debris Generation

1. POLICY

It is NASA policy to --

a. Employ design and operation practices that limit the generation of orbital debris, consistent with mission requirements and cost-effectiveness.

b. Conduct a formal assessment in accordance with NSS 1740.14, on each NASA program/project, of debris generation potential and debris mitigation options, including design options. As a minimum, the assessment should address the following:

(1) The potential for orbital debris generation in both nominal operation and malfunction conditions.

(2) The potential for orbital debris generation due to on-orbit impact with existing space debris (natural or human generated) or other orbiting space systems.

(3) Postmission disposal.

c. Establish and implement additional debris mitigation measures when the assessed debris contributions are not considered acceptable.

2. APPLICABILITY

This NPD applies to NASA Headquarters and all NASA Centers, including Component Facilities, and to all NASA programs/projects that may generate orbital debris. For programs/projects that were beyond the Preliminary Design Review (PDR) in their development cycle prior to April 5, 1993, analysis may be limited to mission planning and operational procedures that affect debris generation. For programs that were not beyond PDR on April 5, 1993, analysis should also include design options. (Programs that were operational prior to April 5, 1993, should limit the assessment to debris-limiting options at end of life.)

The term "orbital debris," as used in this NPD, refers to human-generated debris. Specifically, the term refers to the following:

a. Payloads that can no longer perform their mission.

b. Rocket bodies and other hardware (e.g., bolt fragments and covers) left in orbit as a result of normal launch and operational activities.

c. Fragmentation debris produced by failure or collision. (Gases and liquids in free state are not considered orbital debris.)

3. AUTHORITY

Section 203(c)(1) of the National Aeronautics and Space Act of 1958, as amended (42 U.S.C. 2473(c)(1)).

4. REFERENCES

a. The National Space Policy, The White House, National Science and Technology Council, Fact Sheet, September 19, 1996.

b. "Guidelines and Assessment Procedures for Limiting Orbital Debris," NSS 1740.14, Aug. 1995.

c. 14 CFR Subparts 1216.1 and 1216.3.

5. RESPONSIBILITY

a. The Office of Safety and Mission Assurance (OSMA) is responsible for the following:

(1). Providing documentation and guidelines for assessment of orbital debris generation potential.

(2). Reviewing each debris assessment prepared by NASA programs/projects to ensure that the program/project is in compliance with the policy for limiting orbital debris.

b. The Program/Project Manager for each program/project is responsible for the following:

(1) Ensuring that an assessment has been conducted to determine the potential for orbital debris generation.

(2) Coordinating the assessment results with the cognizant Program Associate Administrator.

(3) Ensuring the establishment and implementation of additional debris mitigation measures, when necessary.

(4) Ensuring that pertinent environmental considerations are met and promptly consulting with the NASA Environmental Management Division (Code JE) and the Office of the General Counsel (Code GG/General Law) if an analysis indicates that debris from accidents or end of life may survive and reenter the Earth's atmosphere.

c. The cognizant Program Associate Administrator is responsible for determining if the program/project is in compliance with NASA policy and coordinating the assessment results with the Office of Safety and Mission Assurance.

d. The Office of Space Flight is responsible for defining the orbital debris environment; for assisting Program/Project Managers in technical debris assessments by providing information and/or directing queries to the appropriate technical staff; and reviewing end-of-life assessments of programs that were operational prior to April 5, 1993, to assess environmental impact.

6. DELEGATION OF AUTHORITY

None.

7. MEASUREMENTS

Compliance with this policy will be determined by the following metrics:

a. Timely development of debris-generation assessments by the program/project (at the PDR and prior to the Critical Design Review).

b. Timely review and acceptance of debris-generation assessments by the cognizant Program Associate Administrator and timely submittal to OSMA.

c. Adequate assessment depth and analysis, as determined by addressing as applicable, the following four areas: nominal operations, malfunction conditions, on-orbit impact, and postmission disposal; and addressing the specific guidelines presented in NSS 1740.14, "Guidelines and Assessment Procedures for Limiting Orbital Debris."

8. CANCELLATION

NMI 1700.8, dated April 5, 1993.

/s/ Daniel S. Goldin

Administrator

ATTACHMENT A: (TEXT)

None.

(URL for Graphic)

None.

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